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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,697	01/13/2004	Randal L. Schmitt	SD-7383	4115
20567	7590	06/28/2006		EXAMINER PUNNOOSE, ROY M
SANDIA CORPORATION P O BOX 5800 MS-0161 ALBUQUERQUE, NM 87185-0161				ART UNIT 2877 PAPER NUMBER

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/757,697	SCHMITT ET AL.	
	Examiner	Art Unit	
	Roy M. Punnoose	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 29 August 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-10, 12 and 13 is/are rejected.
- 7) Claim(s) 11, 14-21 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 03 May 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/2004; 8/2005.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Specification

1. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading.

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS (if applicable).
- (c) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (d) BRIEF SUMMARY OF THE INVENTION.
- (e) BRIEF DESCRIPTION OF THE DRAWING(S).
- (f) DETAILED DESCRIPTION OF THE INVENTION.
- (g) CLAIM OR CLAIMS (commencing on a separate sheet).
- (h) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet and not more than 150 words).

2. In the instant application, the "BRIEF SUMMARY OF THE INVENTION" section is missing. Appropriate correction is required.

Claim Objections

3. Claim 17 is objected to because if a collimated light beam is selected according to its parent claim, claim 2, then it contradicts with the un-collimated light beam of claim 17. Appropriate correction is required.

4. Claims 18-21 are objected to because they are dependent on an objected parent claim, claim 17.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 6-9 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zaromb (US_3,768,908) in view of applicant's admitted prior art.

7. Claim 1 is rejected because:

A. Zaromb teaches a method comprising:

- a. Transmitting a pulse of light (see col.1, lines 32-36, 56-57 and col.3, lines 32-37) at a first known time (see note below);
- b. Interacting said pulse of transmitted light with a mobile agent to generate a pulse of interacted light (see col.1, lines 24-26; col. 4, lines 4-12);
- c. Receiving said pulse of interacted light with a receiver optical system at an at least one later known time (see col.1, lines 24-26; col.2, line36; col3, lines 38-40; col. 4, lines 4-12);
- d. Measuring an intensity (see col. 10, line 19) of said pulse of interacted light with at least one photodetection system in a manner suitable for electronic data storage (see col.3, lines 64- col.4, line 3);
- e. Storing said intensity measurements as data (see col.3, lines 64- col.4, line 3);

f. Repeating said interacting, receiving, measuring, and storing a plurality of times (see col.3, lines 32-35),

for mapping (see col.4, line 8) the movement and position (see col.4, line 10 reference to “tracking” implying locating position) of a mobile agent (such as a pollutant), with a stand-off (see Figure 3A) optical detection (see abstract and Figure 1) for monitoring the position of a mobile agent so that that the location of said mobile agent can be can be determined at any desired time for mapping purposes.

- B. However, Zaromb does not teach of a method in which comparing stored intensity data by means of at least one change detection algorithm for monitoring the position of a mobile agent so that that the location of said mobile agent can be can be determined at any desired time for mapping purposes.
- C. Comparing stored data by means of change detection algorithm to map a location of an object in time and space is admitted prior art (see page 20, paragraph [0046] of specification) for monitoring any change in the position of a mobile agent so that that the location of said mobile agent can be can be determined at any desired time for mapping purposes.
- D. In view of applicant’s admitted prior art, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate admitted prior art change detection algorithm into Zaromb’s method due to the fact that such a combination would make the method more efficient because with the change detection algorithm, any processing of information is done only when there is a change in the position of a mobile agent during the mapping process and the monitoring process can be in a static condition when there is no change of status in the field under observation.

Note: With regard to transmitting a pulse of light “at a first known time,” the specification does not provide any information on the “first known time” or, the “later known time.”

Because the application does not provide a definition for “known time,” any selected time at which light pulses are transmitted to initiate a measurement process is considered as the “first known time”, and the time at which the reflected light pulses arrive at the receiver is considered as the “later known time.”

8. Claim 2 is rejected for the same reasons of rejection of claim 1 above and because Zaromb teaches the use of laser pulse transmission (see col.1, lines 32-36 and 56-57), and laser is a beam of collimated light, and collimated light is light whose rays are parallel.
9. Claim 3 is rejected for the same reasons of rejection of claim 2 above and because Zaromb teaches that receiving is performed using a receiver optical system comprising a receiver telescope 23 (see col.2, lines 38 and lines 48-50) and at least one optical band-pass filter 25, 27 (see col.2, lines 36-53) suitable for passing light that has interacted with the mobile agent 109 and wherein said photodetection system comprise at least one photodetector 29 with gain and at least one digitizer to record (see col.3, lines 56-67 and specifically lines 64-67) the intensity (see col.10, lines 18-23) of the interacted light.
10. Claims 6-7 are rejected for the same reasons of rejection of claim 2 above and because Zaromb teaches of detecting and mapping of mobile agents that are living organism and a member of one of the taxonomic classes of mammalian (see col.6, lines 45-49).
11. Claim 8 is rejected for the same reasons of rejection of claims 6 and 7 above and because in view of Zaromb’s teaching of detecting and mapping of mobile agents that are biological material and a member of one of the taxonomic classes, it would have been obvious to one of ordinary skill in the art to include another member of the taxonomic order such as hymenoptera (ants, bees, two-winged insects, etc.) to the detection group because it would provide the method

with additional capability for more accurate remote detection and imaging of objects for mapping purposes.

12. Claim 9 is rejected for the same reasons of rejection of claim 2 above and because Zaromb teaches of detecting and mapping of mobile agents that are non-living (see col.6, lines 49-57).

13. Claim 12 is rejected for the same reasons of rejection of claim 2 above and because Zaromb teaches that the mobile agent emits interacted light at a wavelength different from the wavelength of transmitted light (see col.5, lines 62-67).

14. Claim 13 is rejected for the same reasons of rejection of claim 2 above and because Zaromb teaches that a material adherent, such as a dye, to the mobile agent emits interacted light at a wavelength different from the wavelength of transmitted light (see col.6, lines 6-9).

15. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zaromb (US_3,768,908) in view of Ulich (US_4,862,257).

16. Claims 4 and 5 are rejected for the same reasons of rejection of claim 2 above and because:

- A. Zaromb teaches all claim limitations including a receiver optical system comprising a means for recording the area illuminated by the laser transmitter as disclosed above in a method for monitoring the position of a mobile agent so that the location of said mobile agent can be determined at any desired time for mapping purposes.
- B. However, Zaromb does not teach of using a receiver optical system comprising a means for recording an image of the area illuminated by the laser transmitter with a gated

camera and lens system in a method for monitoring the position of a mobile agent so that that the location of said mobile agent can be can be determined at any desired time for mapping purposes.

- C. Ulich teaches of imaging means 18, 20 (see abstract) for recording an area illuminated by the laser transmitter with a gated camera and lens system (see col.2, lines 26, 52-67; col.4, lines 52-67, and col.8, line 64 – col.9, line 15) in a method for remote detection and imaging of objects for mapping purposes.
- D. In view of Ulich's teachings, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Ulich's teachings into Zaromb's method due to the fact that such a combination would offer a superior method by providing an image display of the field under observation and thus provide a better perspective of the field for improved measurement for more accurate mapping of the field under observation.

17. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zaromb (US_3,768,908) in view of Ramstack (US_6,396,577 B1).

18. Claim 10 is rejected for the same reasons of rejection of claim 2 above and because:

- A. Zaromb teaches all claim limitations as disclosed above in a method for monitoring the position of a mobile agent so that that the location of said mobile agent can be can be determined at any desired time for mapping purposes.
- B. However, Zaromb does not teach that the interacted light is elastically scattered from the mobile agent in a method for monitoring the position of a mobile agent so that that the

location of said mobile agent can be can be determined at any desired time for mapping purposes.

- C. Ramstack teaches of measuring elastic scattering for detecting mobile agents (see col. 2, lines 35-37) in a method for monitoring the position of a mobile agent so that that the location of said mobile agent can be can be determined at any desired time for mapping purposes.
- D. In view of Ramstack's teachings, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Ramstack's teachings into Zaromb's method due to the fact that such a combination would offer a superior method because by detecting the same wavelength as the transmitted wavelength, any noise due to other wavelengths can be eliminated and thus provide an improved measurement system for more accurate mapping of the field under observation.

Allowable Subject Matter

- 19. Claims 11, 14-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, or if the rejection to its parent claim can be overcome.
- 20. Claim 11 would be allowable because, prior art of record taken alone or in combination, fails to disclose or render obvious a method for mapping the movement and position of a mobile agent in which a wavelength of transmitted light is selected to minimize scattering from an aerosol or a gas molecule while maximizing a scattering reflectance from a mobile agent, in combination with all the rest of the limitations and the limitations of its parent claims, claims 1, 2 and 10.

21. Claim 14 would be allowable because, prior art of record taken alone or in combination, fails to disclose or render obvious a method for mapping the movement and position of a mobile agent in which the collimated light beam is translated laterally between a plurality of pulses, in combination with all the rest of the limitations and the limitations of its parent claims, claims 1 and 2.
22. Claim 17 would be allowable because, prior art of record taken alone or in combination, fails to disclose or render obvious a method for mapping the movement and position of a mobile agent in which pulse of transmitted light comprises an un-collimated light beam, in combination with all the rest of the limitations and the limitations of its parent claims, claims 1 and 2.
23. Claims 15-16 and 18-21 would be allowable because, they are dependent on claims 14 or 17.

Conclusion/Status Information

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Roy M. Punnoose** whose telephone number is **571-272-2427**.

The examiner can normally be reached on 9:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Gregory J. Toatley, Jr.** can be reached on **571-272-2800 ext.77**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June 24, 2006



Roy M. Punnoose
Patent Examiner
Art Unit 2877